

Abstract:

An optical regeneration system for regenerating a degenerated signal light, comprising a regeneration device having at least one of a soliton converter, a pulse roller, a Kerr-shutter and a soliton purifier. The soliton converter uses an anomalous-dispersion fiber (ADF) having a fiber length up to three times the soliton frequency, and the pulse roller is provided with a pulse roller fiber having high non-linear characteristics. The Kerr-shutter comprises an optical LO (local oscillation) generator for generating an optical LO on an OPLL (optical phase locked loop), a phase comparator for detecting the phase difference between an externally-input signal light and an optical LO, and a control unit for regulating the repeated frequency of an optical LO based on the phase difference. The soliton purifier has a soliton fiber disposed between two optical fibers.